UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/829,831	SHRIBERG ET AL.
	Examiner	Art Unit	
	Brian L. Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*20 December 2005*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-11 and 17- 21* is/are rejected.

7)☒ Claim(s) *2-6 and 12-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments, see page 8, filed December 20, 2005, with respect to the

rejection(s) of claim(s) 1, 11, and 21 under 35 U.S.C. 102(e) have been fully considered

and are persuasive. Therefore, the rejection has been withdrawn. However, upon

further consideration, a new ground(s) of rejection is made in view of Nitta et al. (U.S.

Patent 4,881,266).

Up to this point in prosecution of the present application, the Examiner's

interpretation of "prosodic features", as used in independent claims 1, 11, and 21, has

been primarily focused on the "pitch" features of the input speech signal. This because

the Applicant's specification emphasizes the need for pitch analysis in endpointing

speech signals to overcome the prior art problems of only using pause and duration

analysis for endpointing speech signals (see Description of Related Art section of

Applicant's specification).

In response to the Applicant's arguments filed December 20, 2005, the examiner

concedes that Lennig does not disclose providing an endpoint signal *and* the speech

signal to a speech processing application, as required by independent claims 1, 11, and

21. Lennig instead provides previously endpointed speech signals to a speech

processing application, and does not disclose providing both the speech signal and a

separate endpoint signal to facilitate subsequent processing of the speech signal.

Therefore, the rejections of claims 1, 11, and 21 are withdrawn.

However, the term "prosody" is defined by the Applicant's specification as "the way speakers modulate the timing, pitch, and loudness of phones words and phrases" (see page 2, paragraph 6). The term "prosodic features" as used in independent claims 1, 11, and 21, therefore, is not limited to pitch features, but includes other features as well (i.e. timing and loudness). This is further emphasized by the fact that claims which depend from independent claims 1, 11, and 21, such as claims 2 and 3, define the extraction of prosodic features as processing pitch information (as in claim 2) as well as performing pause analysis (as in claim 3).

2.   Given this interpretation of the term "prosodic features", new grounds of rejection are made for claims 1, 11, and 21 under 35 U.S.C. 102(b) as being anticipated by Nitta et al. (U.S. Patent 4,881,266), because Nitta et al. disclose an endpoint detection scheme wherein loudness and duration analysis of an input signal are used for endpoint detection. Further, the speech signal as well as a separate endpoint signal are provided to a speech processor for subsequent processing.

Allowable Subject Matter

3.   Claims 2 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As explained above, the Examiner concedes that Lennig does not disclose providing an endpoint signal *and* the speech signal to a speech processing application, as required by independent claims 1, 11, and 21. Further, it would not have been

obvious to one of ordinary skill in the art to modify Lennig to provide an endpoint signal

in addition to the speech signal to a speech processing application.

Nitta et al. disclose using prosodic features to identify a speech endpoint (timing

and loudness), but provide no suggestion that pitch information be analyzed to

determine a speech endpoint.

Claims 3-6 and 13-16 further limit claims 2 and 12 and thus, would also be

allowable.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 7-11, and 17-21 are rejected under 35 U.S.C. 102(b) as being

anticipated by Nitta et al. (U.S. Patent 4,881,266).

In regard to claims 1, 11, and 21, Nitta et al. disclose a method, apparatus, and

electronic storage medium for processing a speech signal comprising:

extracting prosodic features from a speech signal (Fig. 4, sound powers are

extracted from the input speech signal, column 4, lines 41-51; the loudness of an input

speech signal is a function of the power of the input speech signal);

modeling the prosodic features to identify at least one speech endpoint (a word

boundary is determined when the sound power drops below a predetermined threshold

for a predetermined number of frames, column 6, lines 30-42; this modeling, therefore,

is related to the prosodic features of loudness and timing);

producing an endpoint signal corresponding to the occurrence of at least one

endpoint (word frame intervals are sent to the pattern match detector, Fig. 3, 3A,

column 7, lines 46-65); and

providing the endpoint signal and the speech signal to a speech processing

application to facilitate subsequent processing of the speech signal (word frame

intervals are sent to the pattern match detector, Fig. 3, 3A, column 7, lines 46-65; in

addition to the LPC coefficients of the input speech signal, see Fig. 3 and column 7, line

66 to column 8, line 11).

In regard to claims 7 and 17, Nitta et al. disclose the producing step comprises

generating a posterior probability regarding the at least one speech endpoint (Fig. 5,

likelihood calculator 24 determines the probability of the frame intervals, column 7, lines

46-65).

In regard to claims 8 and 18, Nitta et al. disclose the posterior probability includes

a probability that a user has completed an utterance (likelihood calculator 24 determines

the probability of ending candidates B1 and B2, column 7, lines 46-65).

In regard to claims 9 and 19, Nitta et al. disclose the posterior probability is

continuously updated as the speech signal is processed (incoming groups of frames are

continuously compared to the sound power threshold to update the likelihood of the

ending points, column 7, lines 29-44).

In regard to claims 10 and 20, Nitta et al. disclose executing a speech recognition

routine for processing the speech signal using the at least one speech endpoint (Fig. 3,

pattern match detector 3A and discriminator 5A recognize the input speech, column 4,

lines 19-30).

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-

7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every

second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

BLA 2/10/06

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